PATENT APPLICATION

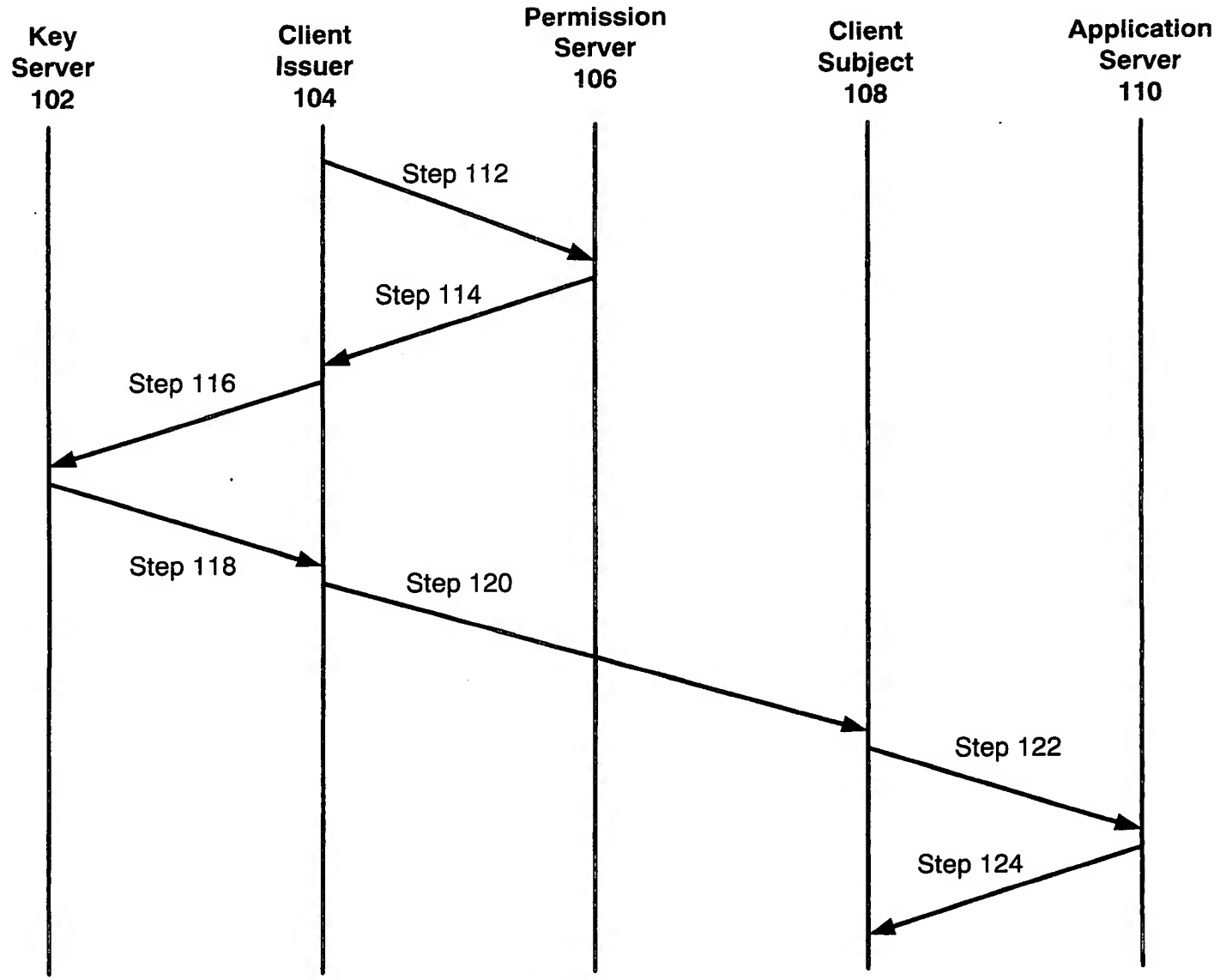


Figure 1A

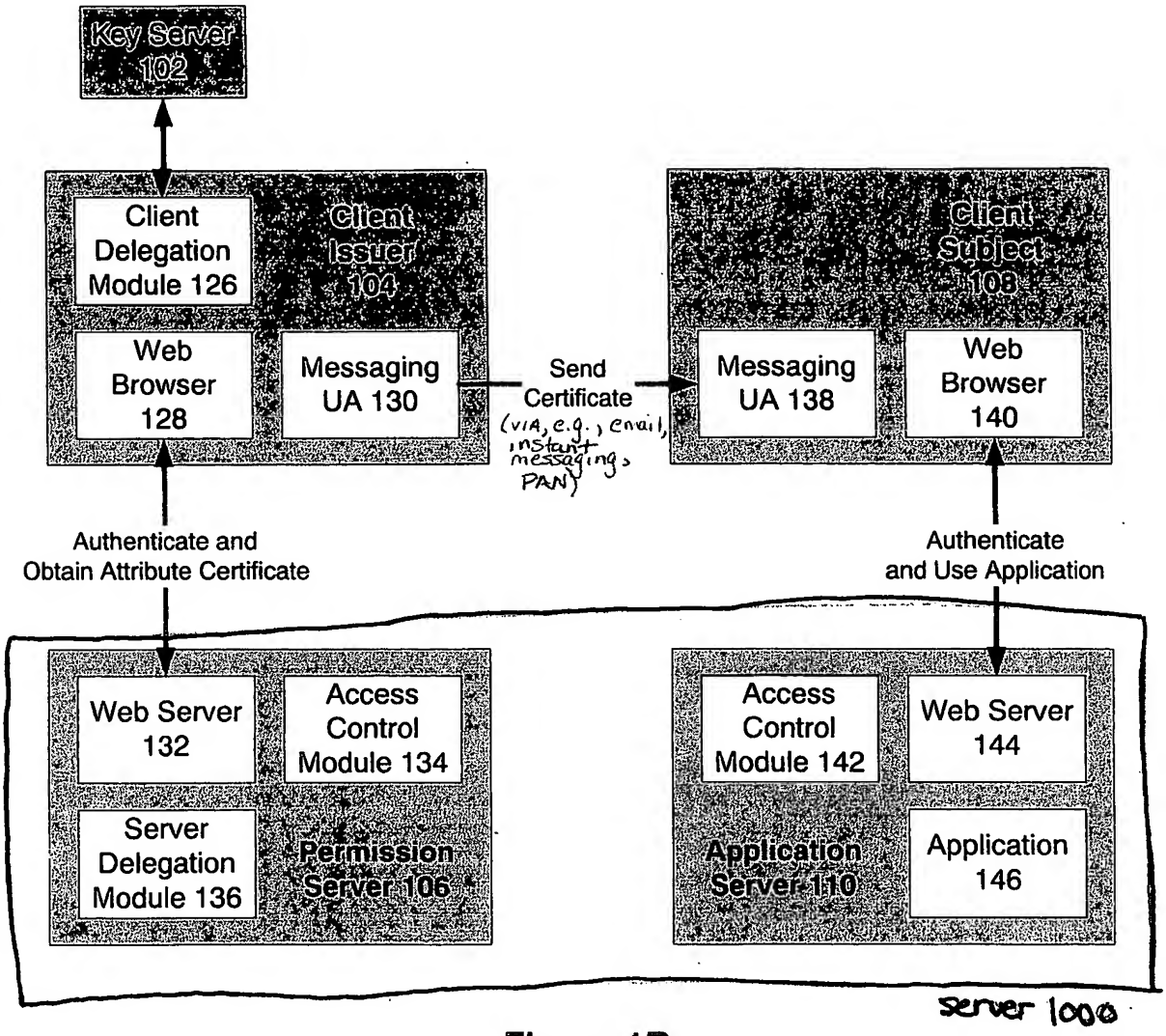


Figure 1B

100

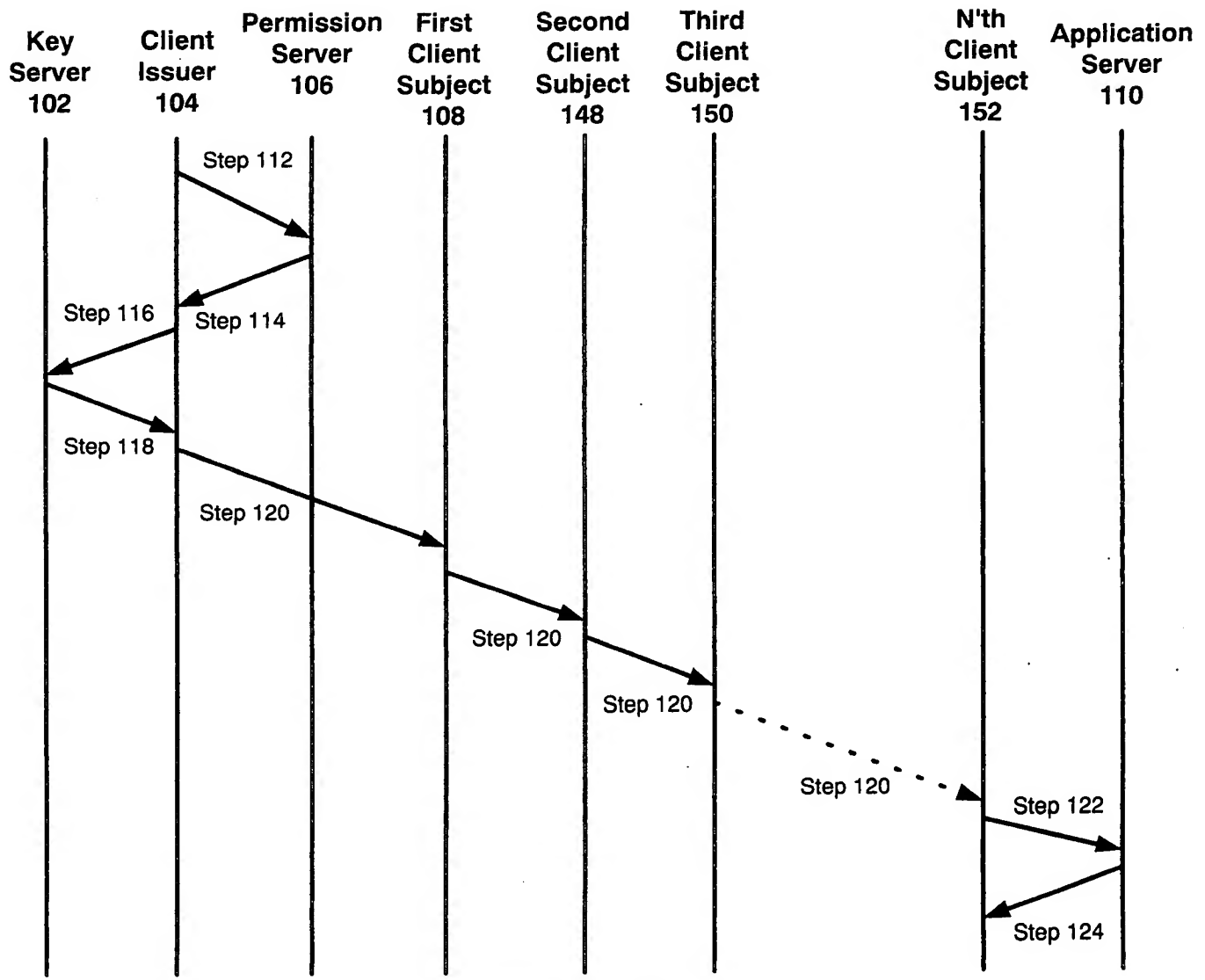

Key Server 102
Client Issuer 104
Permission Server 106
First Client Subject 108
Second Client Subject 148
Third Client Subject 150
N'th Client Subject 152
Application Server 110
Step 112
Step 114
Step 116
Step 118
Step 120
Step 120
Step 120
Step 120
Step 122
Step 124

Figure 1C

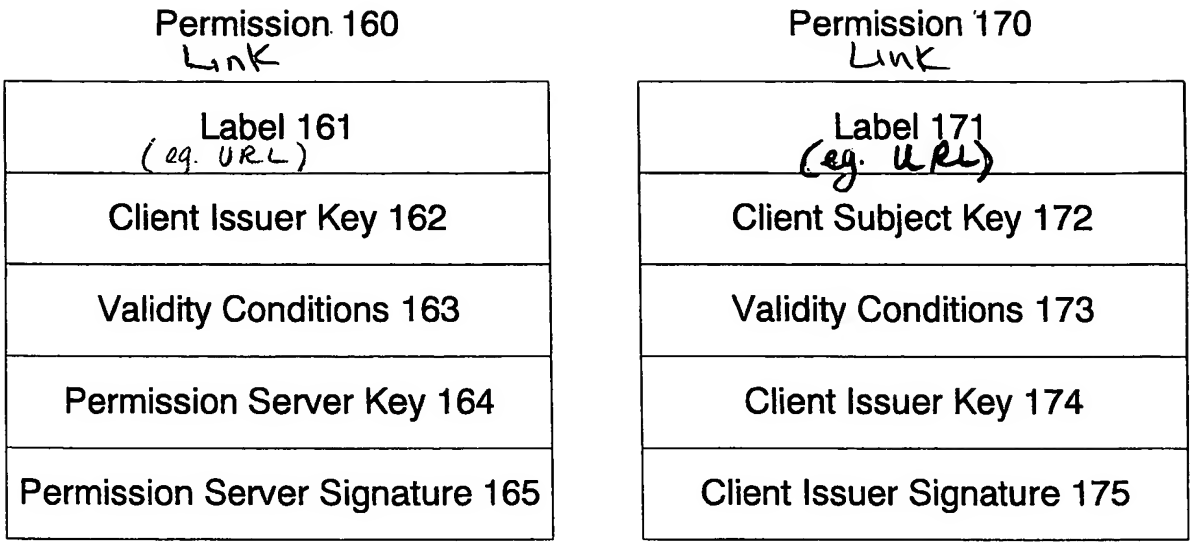

Permission 160
Link
Label 161
(eg. URL)
Client Issuer Key 162
Validity Conditions 163
Permission Server Key 164
Permission Server Signature 165
Permission 170
Link
Label 171
(eg. URL)
Client Subject Key 172
Validity Conditions 173
Client Issuer Key 174
Client Issuer Signature 175

Figure 1D

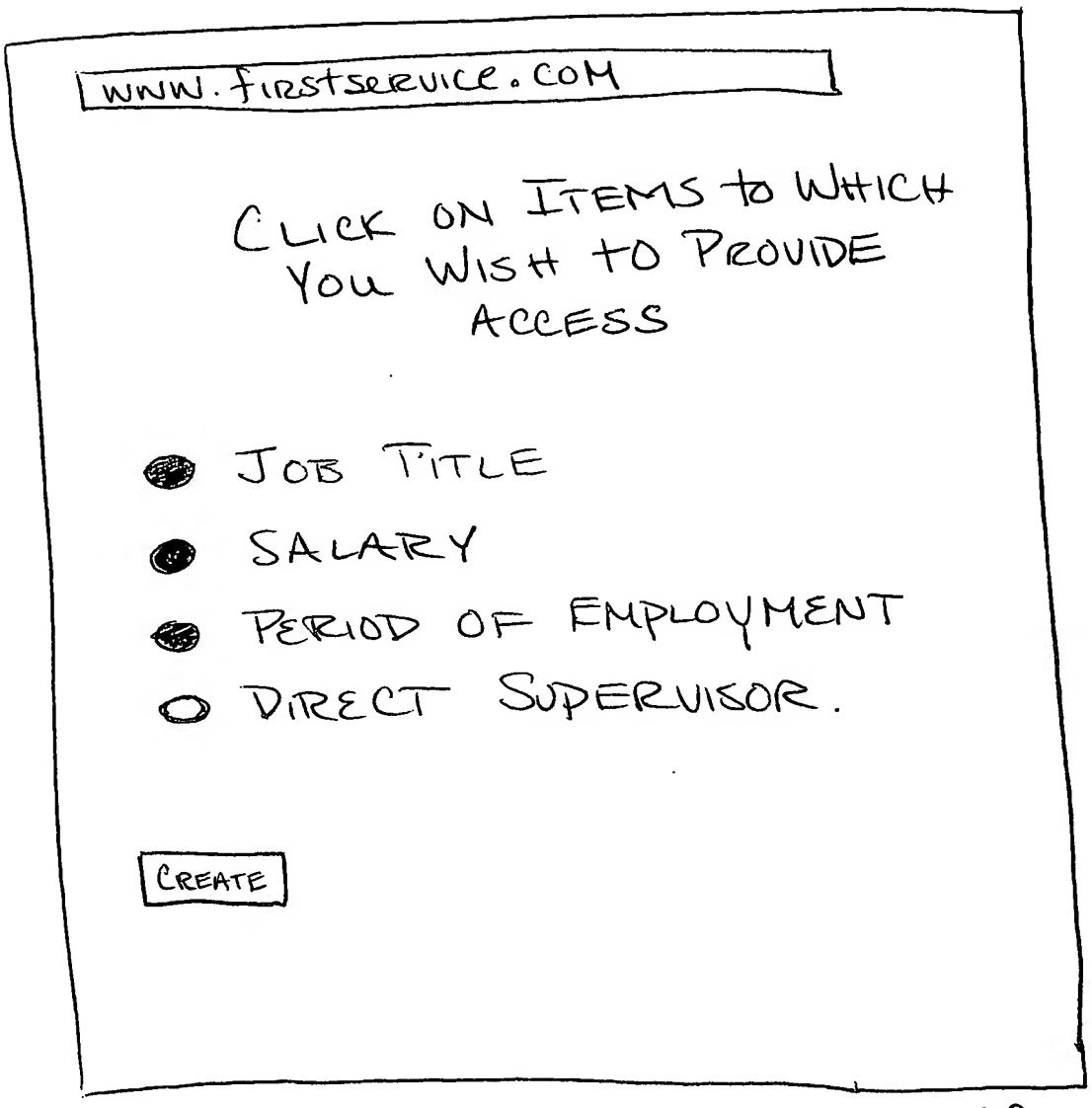

WWW.FIRSTSERVICE.COM
CLICK ON ITEMS TO WHICH YOU WISH TO PROVIDE ACCESS
JOB TITLE
SALARY
PERIOD OF EMPLOYMENT
DIRECT SUPERVISOR.
CREATE
190

FIGURE 1E

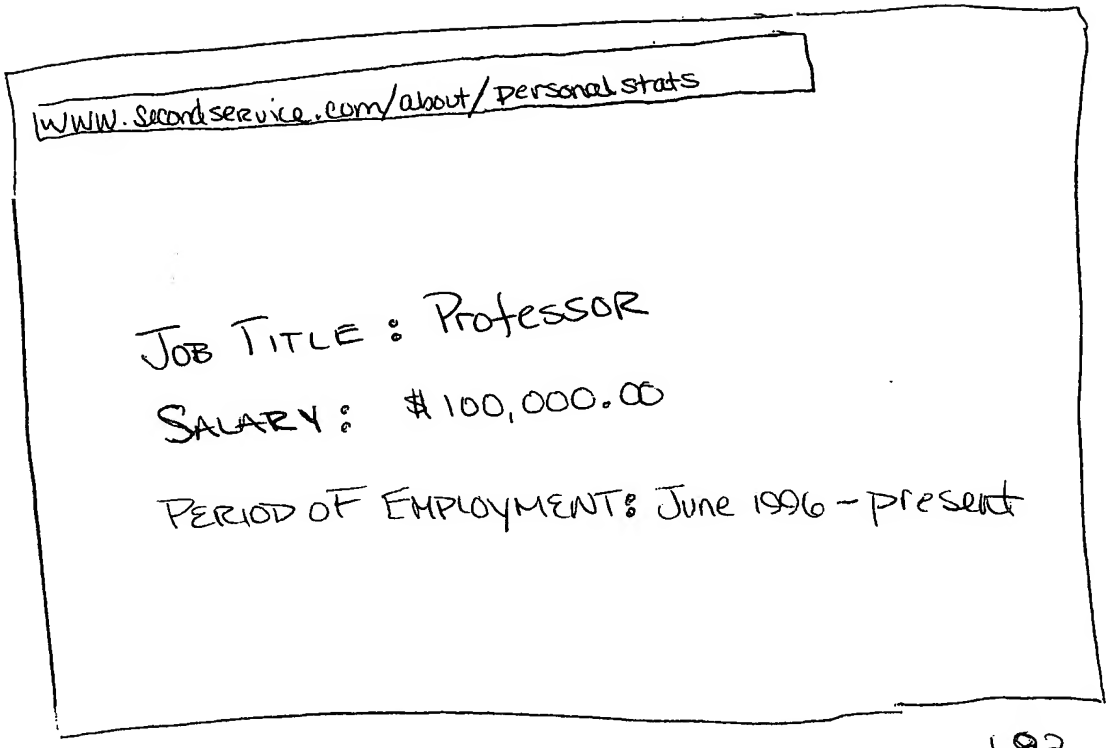

www.recordservice.com/about/personal stats
JOB TITLE: Professor
SALARY: $100,000.00
PERIOD OF EMPLOYMENT: June 1996 - present

FIGURE 1F

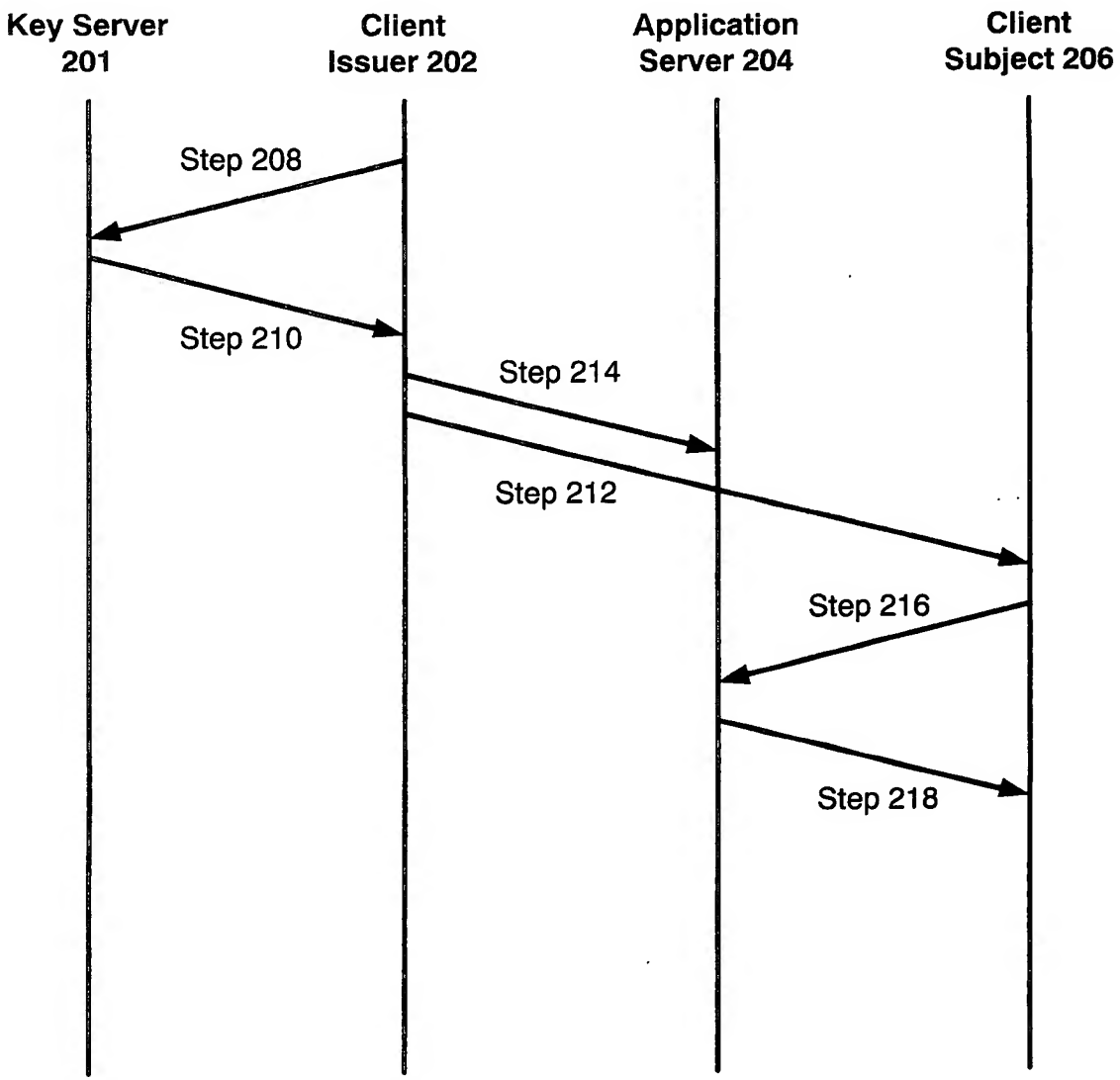

Key Server 201
Client Issuer 202
Application Server 204
Client Subject 206
Step 208
Step 210
Step 214
Step 212
Step 216
Step 218

Figure 2A

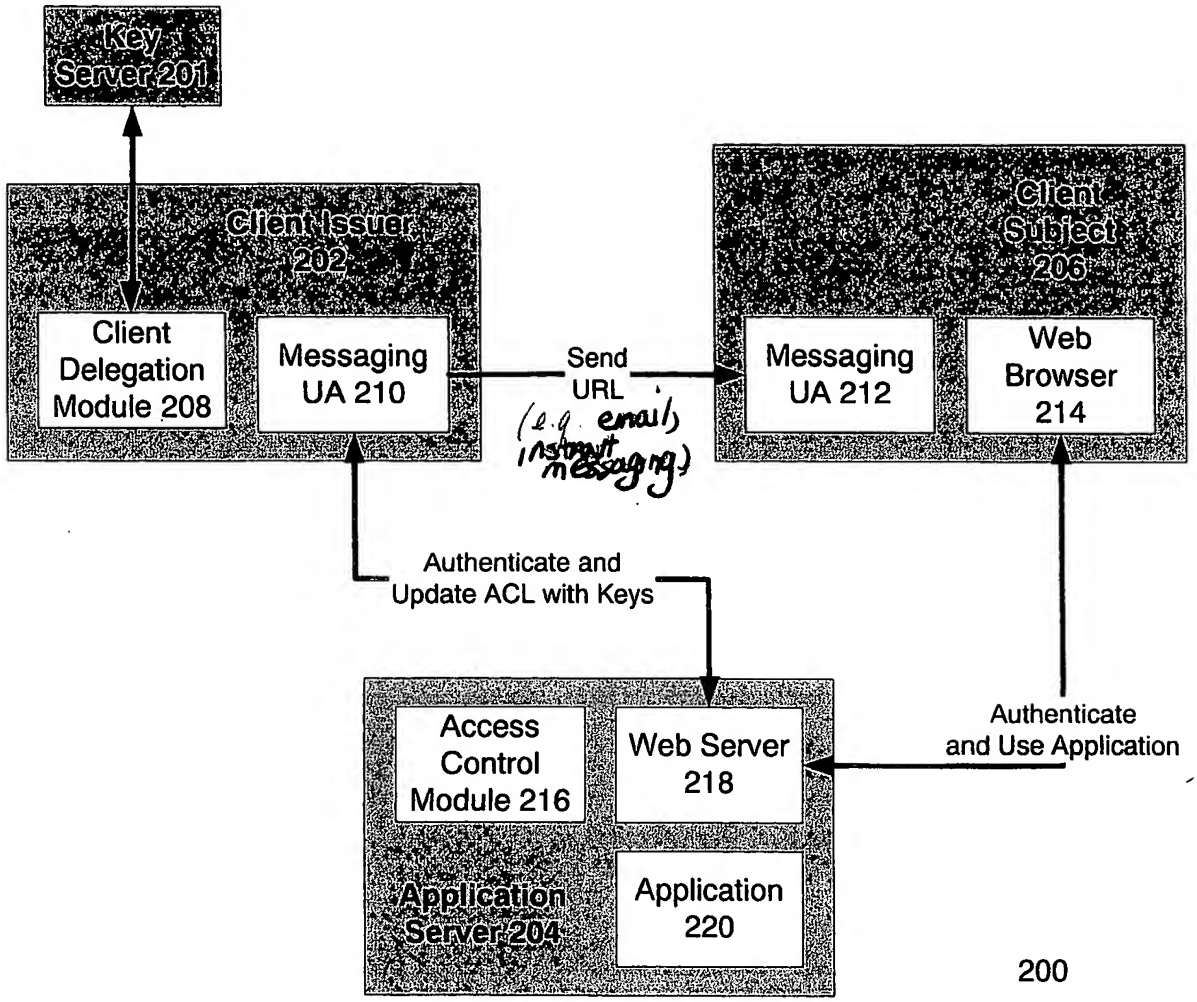

Key Server 201
Client Issuer 202
Client Delegation Module 208
Messaging UA 210
Send URL
(e.g. email, instant messaging)
Client Subject 206
Messaging UA 212
Web Browser 214
Authenticate and Update ACL with Keys
Access Control Module 216
Web Server 218
Application Server 204
Application 220
Authenticate and Use Application
200

Figure 2B

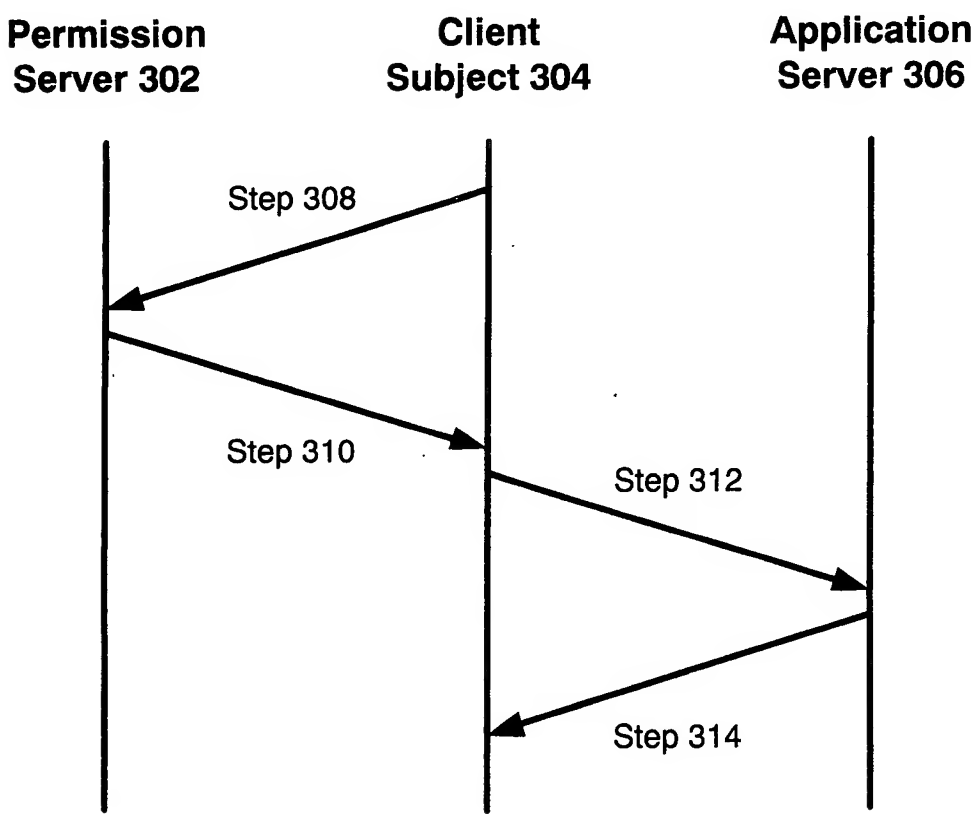

Permission Server 302
Client Subject 304
Application Server 306
Step 308
Step 310
Step 312
Step 314

Figure 3A

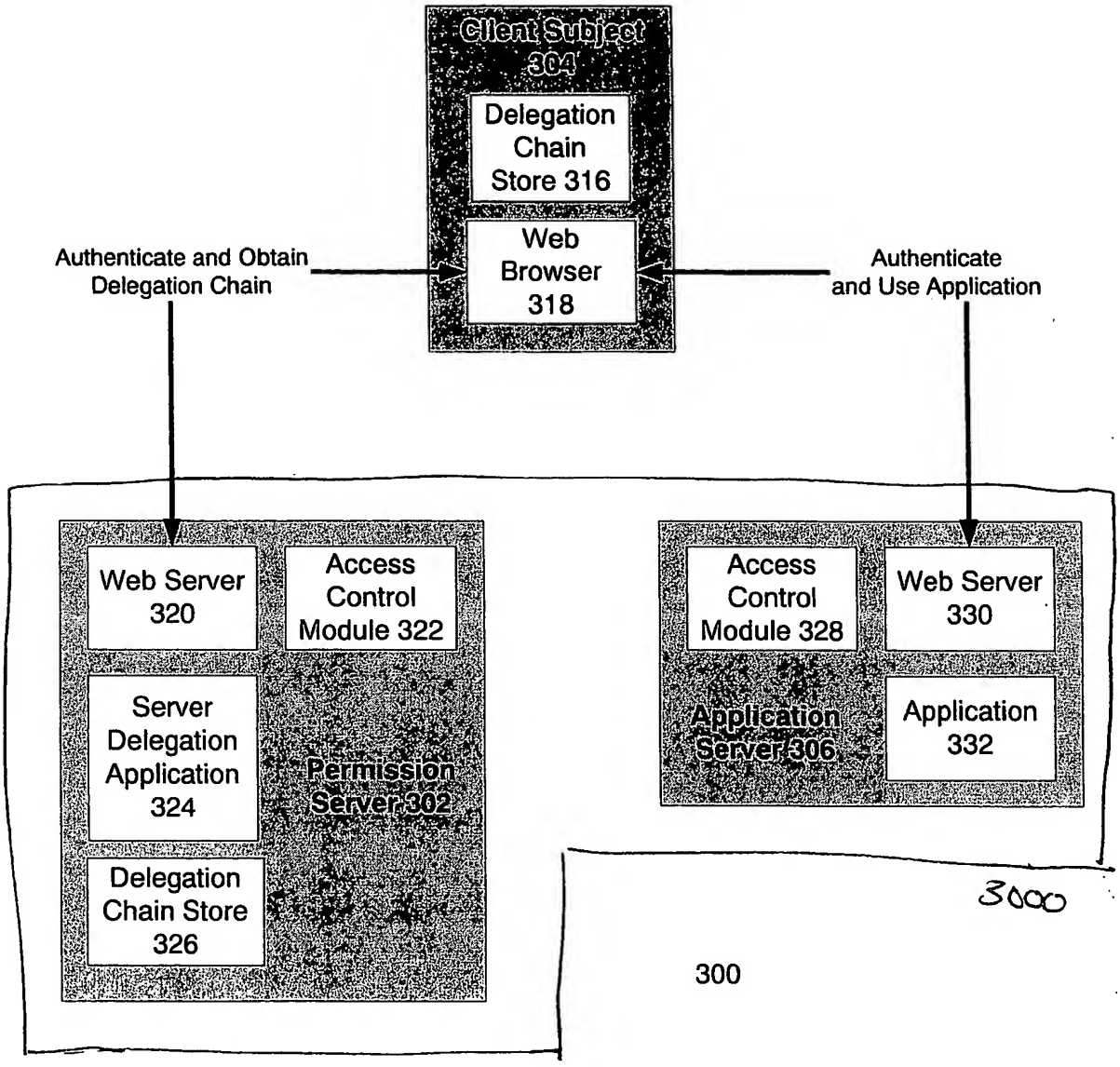

Client Subject 304
Delegation Chain Store 316
Web Browser 318
Authenticate and Obtain Delegation Chain
Authenticate and Use Application
Web Server 320
Access Control Module 322
Server Delegation Application 324
Permission Server 302
Delegation Chain Store 326
Access Control Module 328
Web Server 330
Application Server 306
Application 332
3000
300

Figure 3B

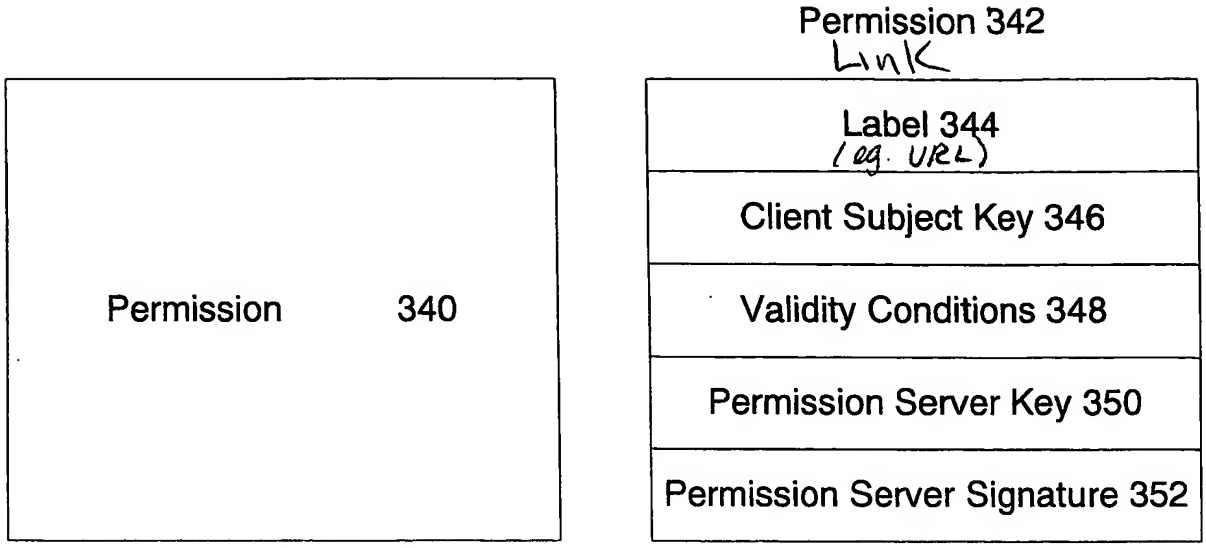
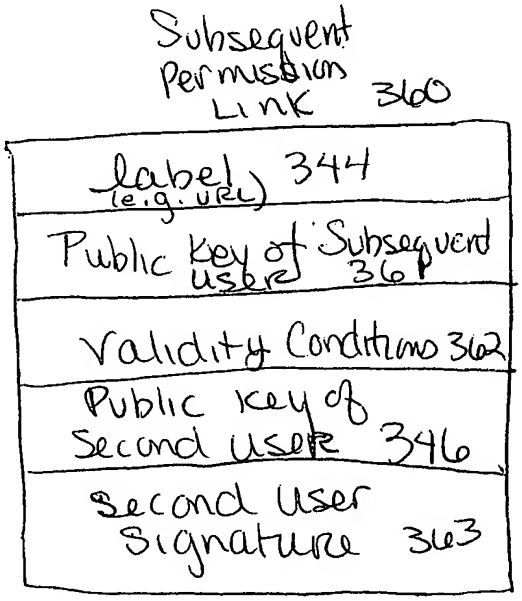

Permission 342
Link
Permission 340
Label 344
(eg. URL)
Client Subject Key 346
Validity Conditions 348
Permission Server Key 350
Permission Server Signature 352

Figure 3C


Subsequent
Permission
Link 360
label 344
(e.g. URL)
Public Key of Subsequent
User 364
Validity Conditions 362
Public key of
Second user 346
Second User
Signature 363

3C9S0S0 " 0S9S9S0ST

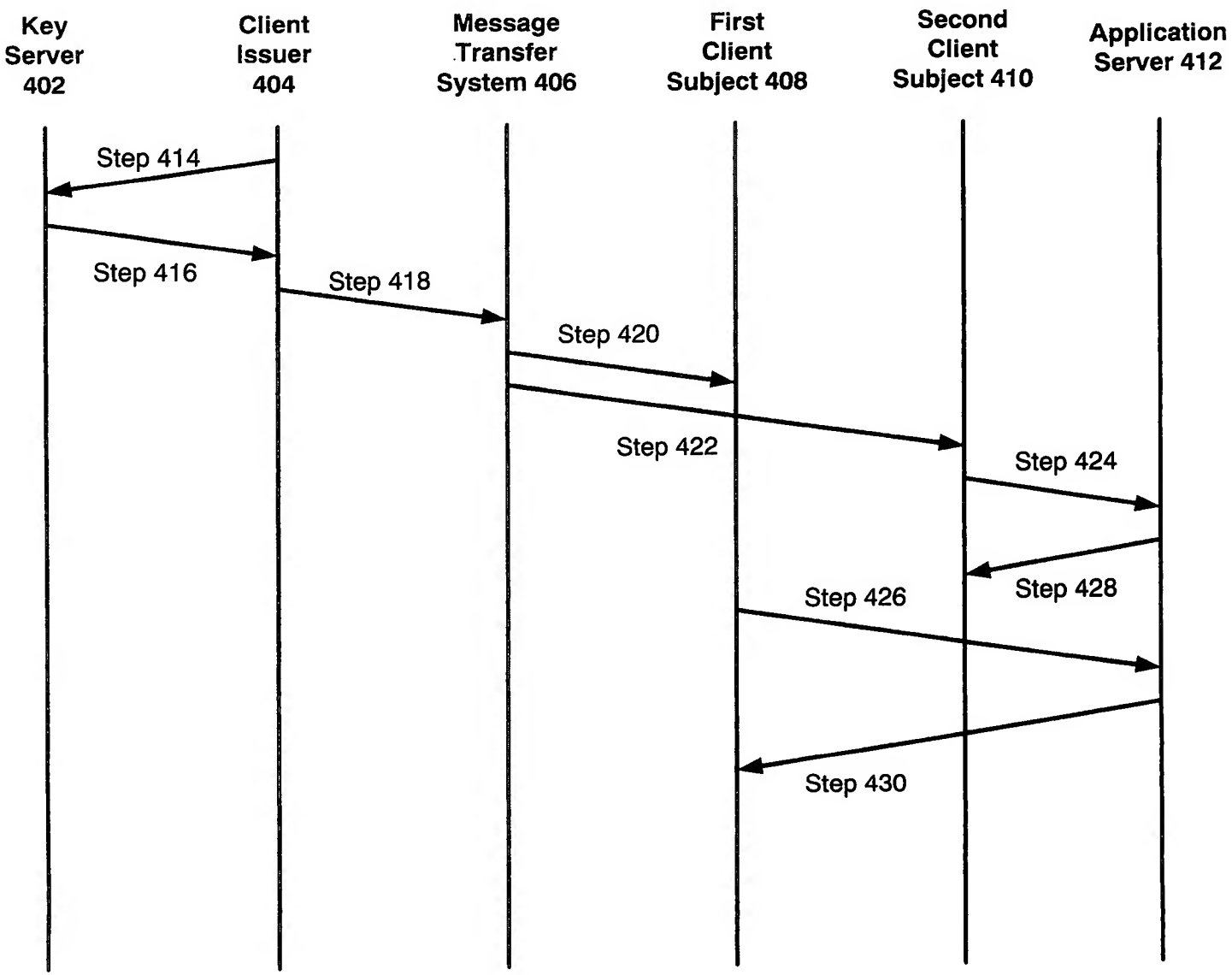


Figure 4A

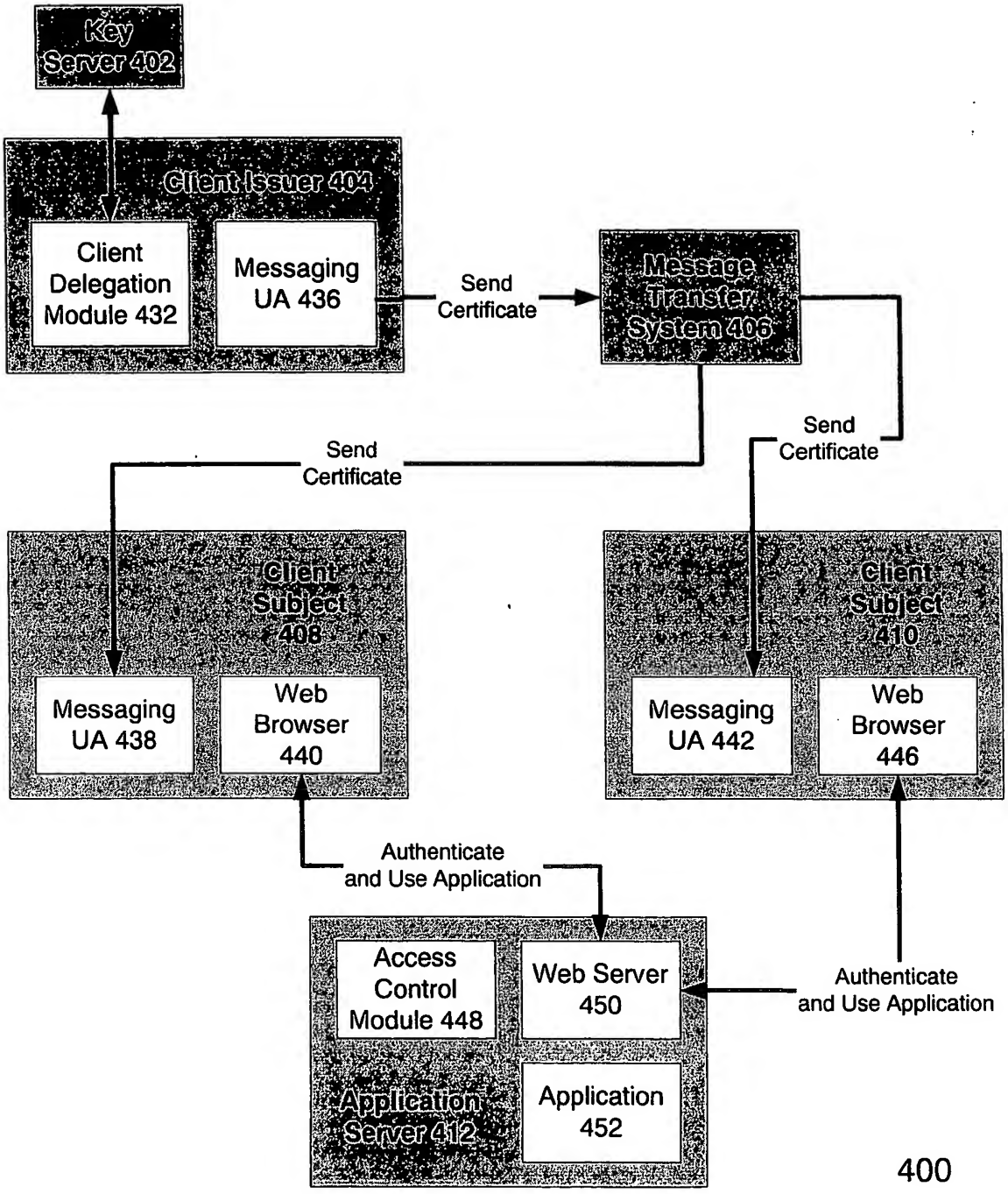

Key Server 402
Client Issuer 404
Client Delegation Module 432
Messaging UA 436
Send Certificate
Message Transfer System 406
Send Certificate
Send Certificate
Client Subject 408
Messaging UA 438
Web Browser 440
Client Subject 410
Messaging UA 442
Web Browser 446
Authenticate and Use Application
Access Control Module 448
Web Server 450
Application Server 412
Application 452
Authenticate and Use Application
400

Figure 4B

Permission with Multiple Subjects 470

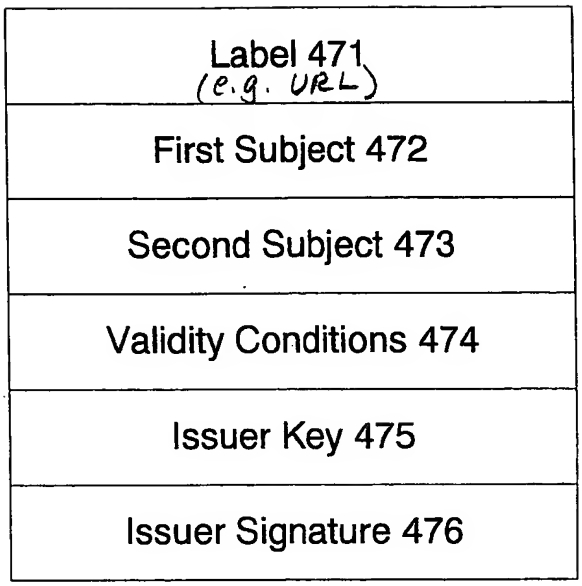


Figure 4C

FIGURE 5

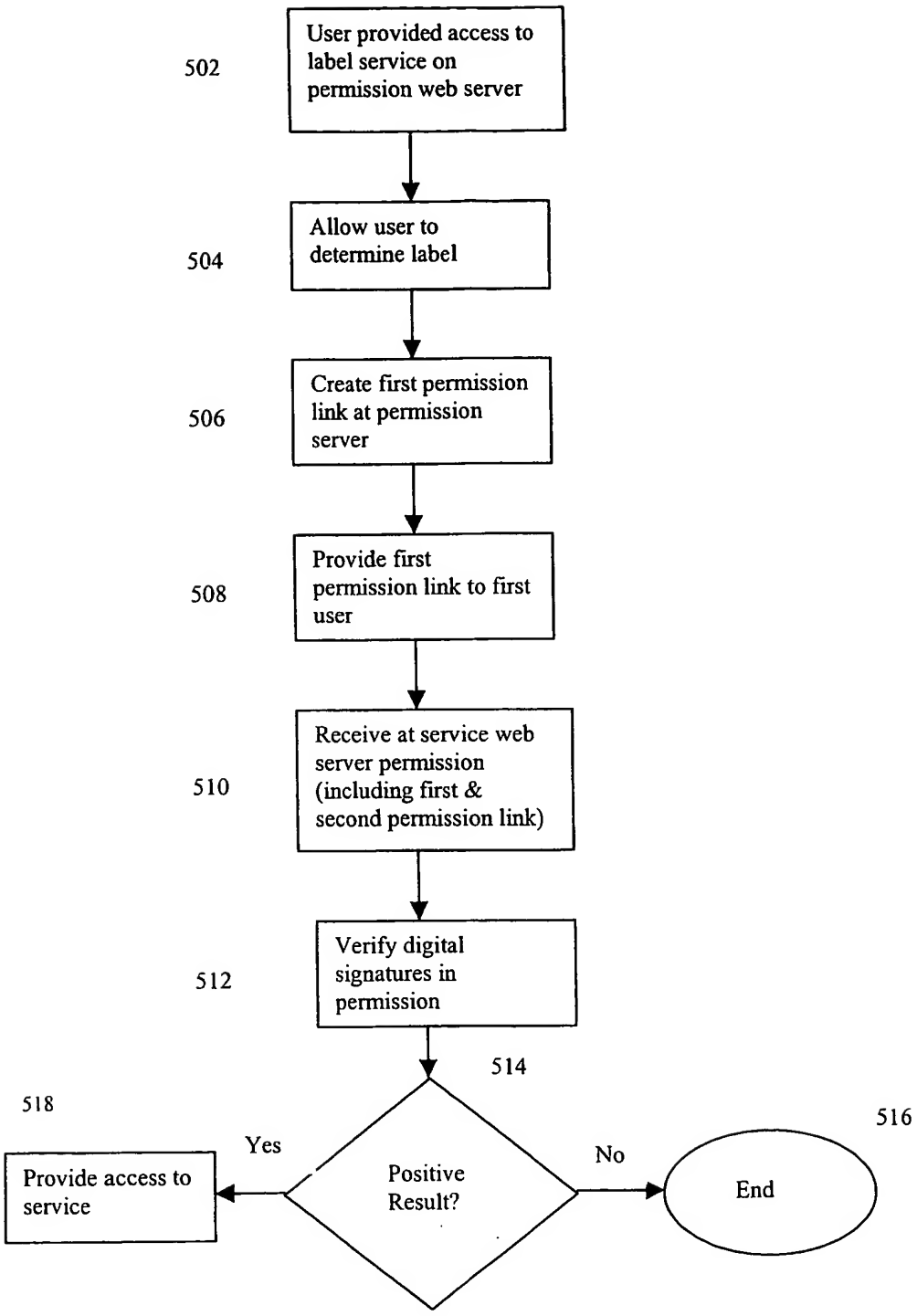

502
User provided access to label service on permission web server
504
Allow user to determine label
506
Create first permission link at permission server
508
Provide first permission link to first user
510
Receive at service web server permission (including first & second permission link)
512
Verify digital signatures in permission
514
Positive Result?
Yes
No
518
Provide access to service
516
End

FIGURE 6

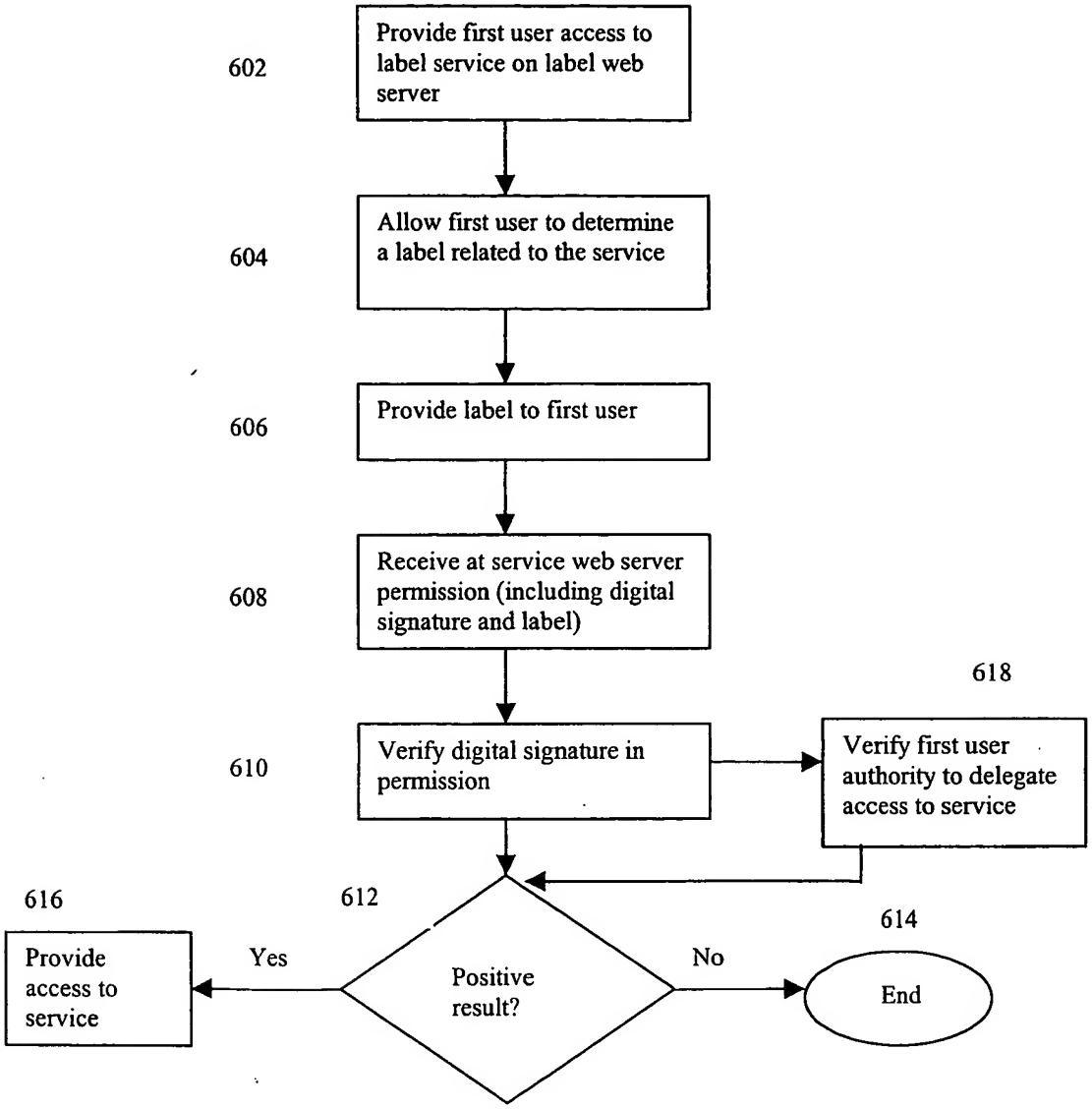

602
Provide first user access to label service on label web server
604
Allow first user to determine a label related to the service
606
Provide label to first user
608
Receive at service web server permission (including digital signature and label)
610
Verify digital signature in permission
618
Verify first user authority to delegate access to service
612
Positive result?
Yes
No
616
Provide access to service
614
End

FIGURE 7

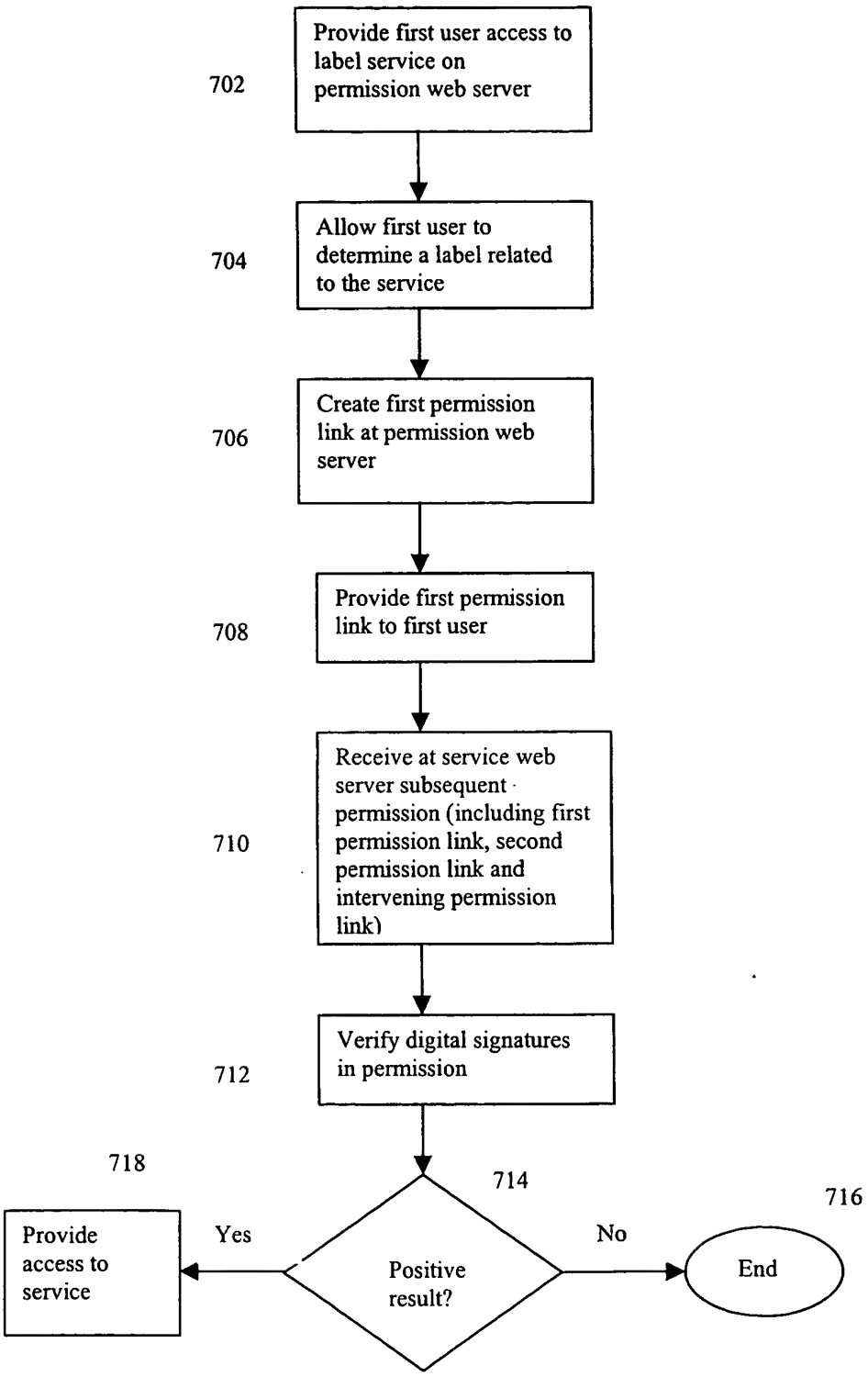

Provide first user access to label service on permission web server
702
Allow first user to determine a label related to the service
704
Create first permission link at permission web server
706
Provide first permission link to first user
708
Receive at service web server subsequent permission (including first permission link, second permission link and intervening permission link)
710
Verify digital signatures in permission
712
718
714
716
Provide access to service
Yes
Positive result?
No
End

FIGURE 8

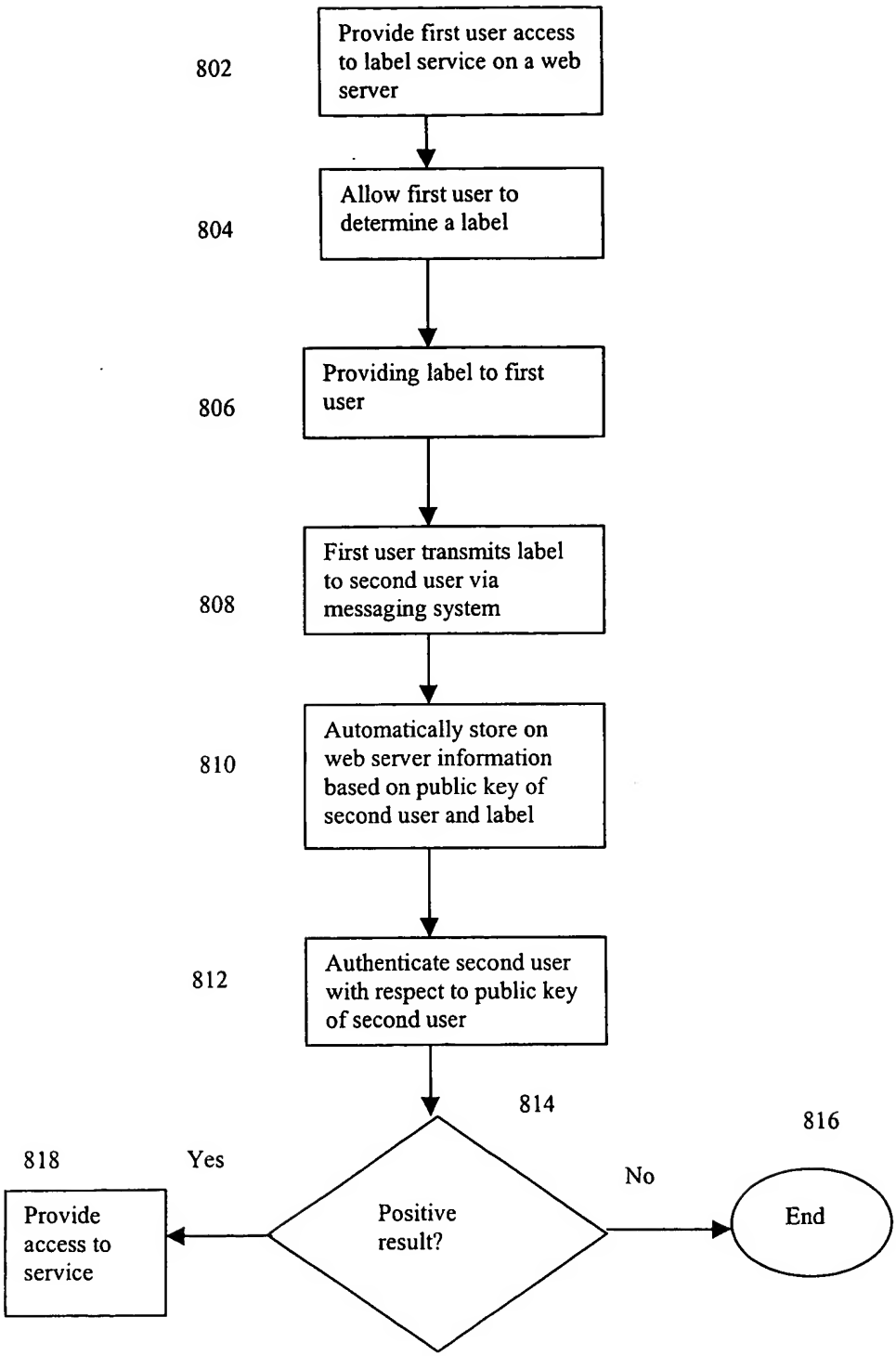

802
Provide first user access to label service on a web server
804
Allow first user to determine a label
806
Providing label to first user
808
First user transmits label to second user via messaging system
810
Automatically store on web server information based on public key of second user and label
812
Authenticate second user with respect to public key of second user
814
Positive result?
Yes
No
816
End
818
Provide access to service

FIGURE 9

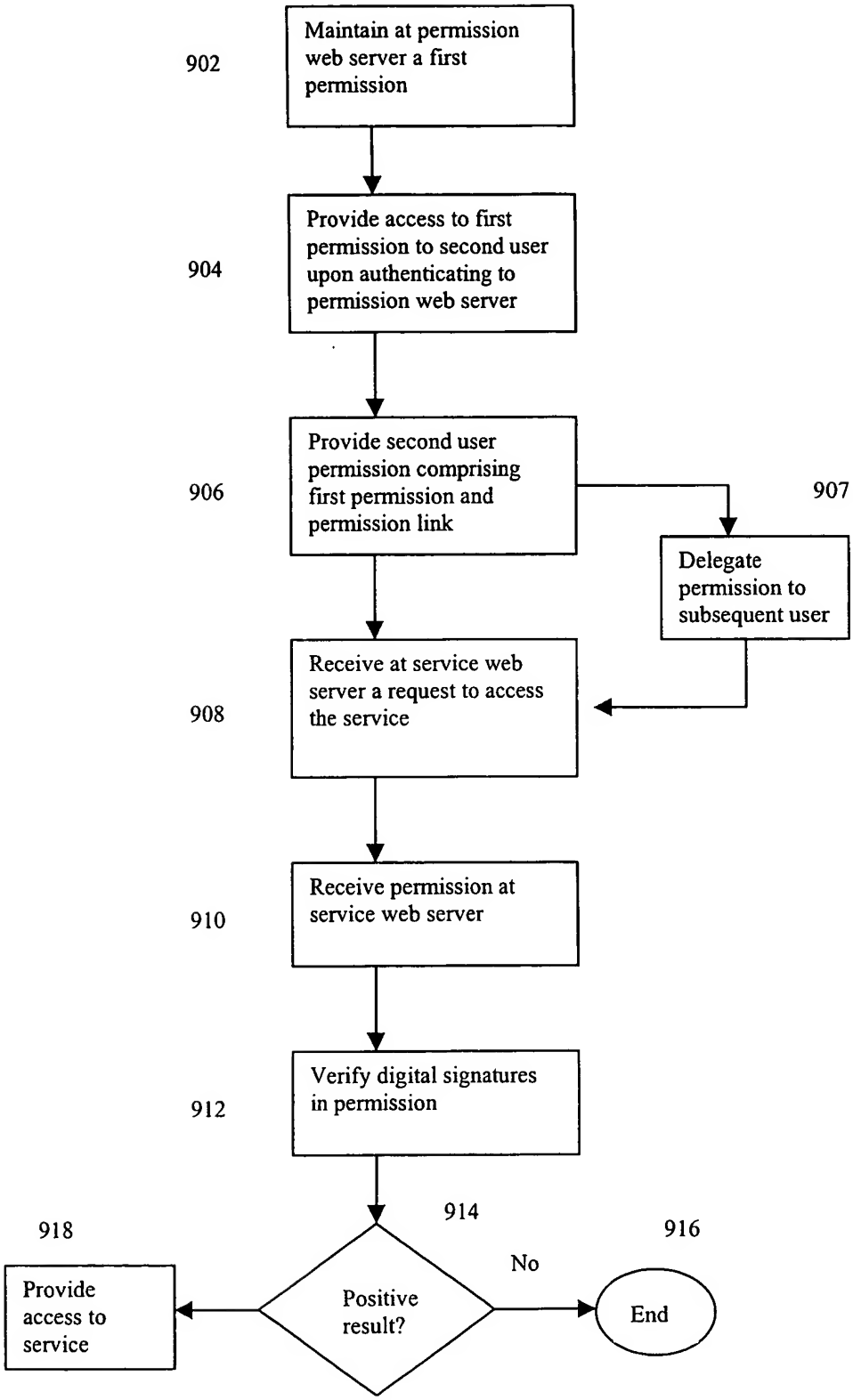
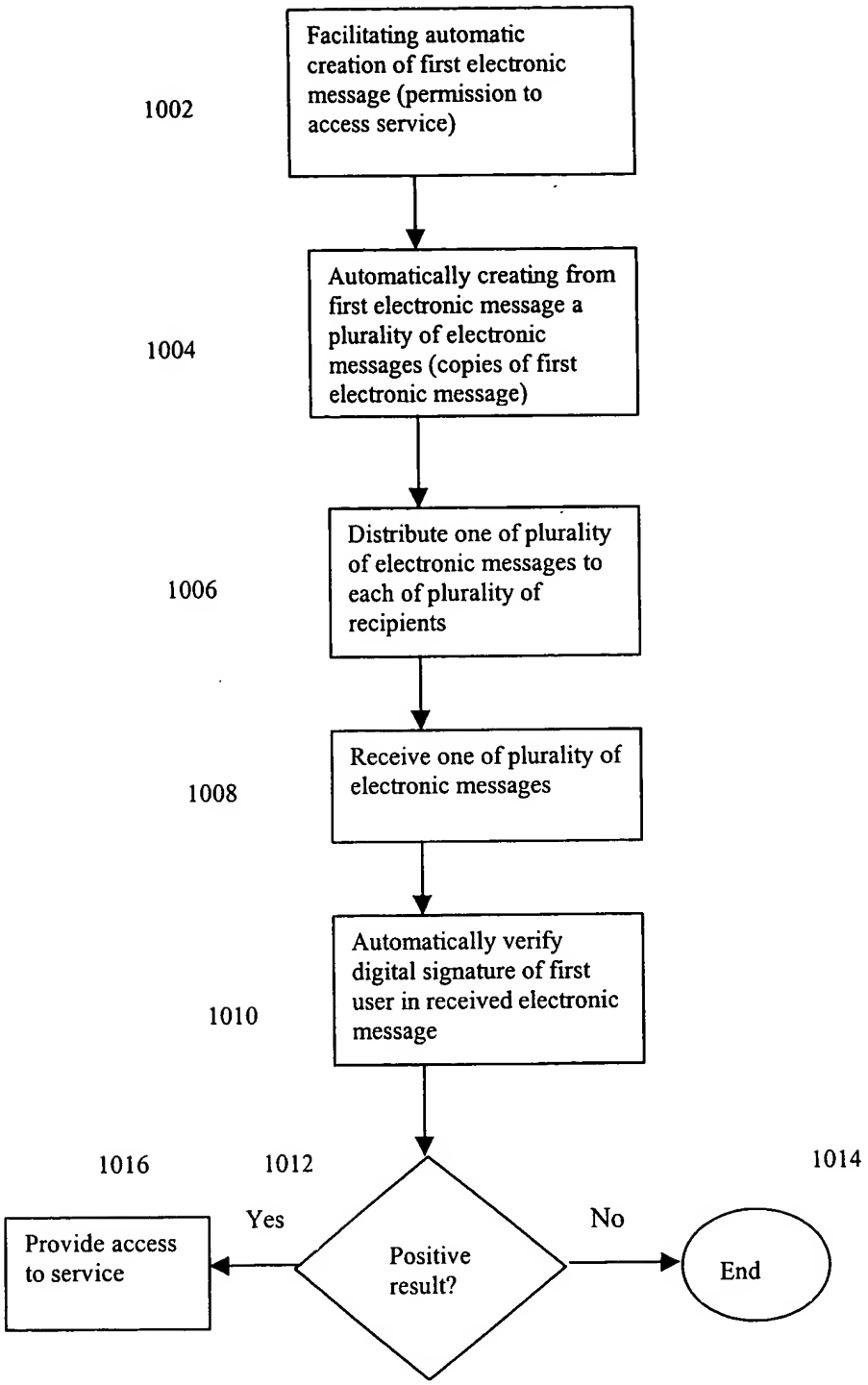

902
Maintain at permission web server a first permission
904
Provide access to first permission to second user upon authenticating to permission web server
906
Provide second user permission comprising first permission and permission link
907
Delegate permission to subsequent user
908
Receive at service web server a request to access the service
910
Receive permission at service web server
912
Verify digital signatures in permission
914
Positive result?
No
916
End
918
Provide access to service

FIGURE 10


Facilitating automatic creation of first electronic message (permission to access service)
1002
Automatically creating from first electronic message a plurality of electronic messages (copies of first electronic message)
1004
Distribute one of plurality of electronic messages to each of plurality of recipients
1006
Receive one of plurality of electronic messages
1008
Automatically verify digital signature of first user in received electronic message
1010
1016
1012
1014
Yes
No
Provide access to service
Positive result?
End